UNITED STATES PATENT AND TRADEMARK OFFICE

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WARE, CICELY Q

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/891,710	HAZANCHUK, ASHER
	Examiner	Art Unit
	Cicely Ware	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _27 December 2005_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-46_ is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-4,6-23,26-44 and 46_ is/are rejected.

7)☒ Claim(s) _5,24,25 and 45_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _27 December 2005_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _2_.

4)☐ Interview Summary (PTO-413).
     Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments, see <u>REMARKS</u>, filed 12/27/2005, with respect to the

rejection(s) of claim(s) 1-6, 9-15, 19, 23, 33, 36, 46 under 35 USC 102(b) and 7,8, 20-

22, 16,28, 42 under 35 USC 103(a) have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a

new ground(s) of rejection is made in view of Okamoto (US Patent 6,121,223) and Tran

et al. (US Patent 5,715,276).

Drawings

2.   It is office policy to request from applicants that submitted figures contain both

text and numerical labels to allow individuals viewing each figure to be able to

determine the designation of each element in the figure without having to go into the

specifications.

A proposed drawing correction or corrected drawings are required in reply to the

Office action to avoid abandonment of the application. The objection to the drawings·

will not be held in abeyance.

Specification

3.   The disclosure is objected to because of the following informalities:

a.   Pg. 2, line 20, applicant uses "MIPS". Examiner suggests applicant spell

out all first instances of all acronyms.

b.   Pg. 3, line 4, applicant uses the phrase "method an apparatus". Examiner

suggests applicant re-write this phrase for clarification purposes.

c.   Pg. 3, line 5, applicant uses the phrase "samples that is efficient".

Examiner suggests using "samples that are efficient" for clarification purposes.

d.   Pg. 10, line 23, applicant uses the phrase "sample sequence at a time".

Examiner suggests using "sample sequences at a time" for clarification purposes.

e.   Pg. 13, line 7, applicant uses the phrase "sample sequences groups".

Examiner suggests using "sample sequence groups" for clarification purposes.

Appropriate correction is required.

4.   The lengthy specification has not been checked to the extent necessary to

determine the presence of all possible minor errors. Applicant's cooperation is

requested in correcting any errors of which applicant may become aware in the

specification.

Claim Rejections - 35 USC § 112

5.   Claim 38 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

a.   With regard to claim 38, examiner asserts that claim 38 is incomplete,

because no end is indicated for the claim.

Therefore claim 38 has not been further treated on the merits.

Claim Rejections - 35 USC § 101

6.   Claims 1- 46 are rejected under 35 U.S.C. 101 because:

a. The claimed invention is directed to non-statutory subject matter. b. Practical
Application That Produces a Useful, Concrete, and Tangible Result

For eligibility analysis, physical transformation "is not an
invariable requirement, but merely one example of how a mathematical
algorithm [or law of nature] may bring about a useful application."
AT&T, 172 F.3d at 1358-59, 50 USPQ2d at 1452. If the examiner determines
that the claim does not entail the transformation of an article, then the
examiner shall review the claim to determine if the claim provides a
practical application that produces a useful, tangible and concrete result.
In determining whether the claim is for a "practical application," the focus
is not on whether the steps taken to achieve a particular result are
useful, tangible and concrete, but rather that the final result achieved by
the claimed invention is "useful, tangible and concrete." The claim must be
examined to see if it includes anything more than a Sec. 101 judicial
exception. If the claim is directed to a practical application of the Sec.
101 judicial exception producing a result tied to the physical world that
does not preempt the judicial exception, then the claim meets the statutory
requirement of 35 U.S.C. Sec. 101. If the examiner does not find such a
practical application, the examiner has determined that the claim is
nonstatutory.

In determining whether a claim provides a practical application that
produces a useful, tangible, and concrete result, the examiner should
consider and weigh the following factors:

(2) "TANGIBLE RESULT"

The tangible requirement does not necessarily mean that a claim must
either be tied to a particular machine or apparatus or must operate to
change articles or materials to a different state or thing. However,
the tangible requirement does require that the claim must recite more
than a Sec. 101 judicial exception, in that the process claim must set
forth a practical application of that Sec. 101 judicial exception to
produce a real-world result. Benson, 409 U.S. at 71-72, 175
USPQ at 676-77 (invention ineligible because had "no substantial
practical application."). "[A]n application of a law of nature or
mathematical formula to a . . . process may well be deserving of patent
protection." Diehr, 450 U.S. at 187, 209 USPQ at 8 (emphasis added); see
also Corning, 56 U.S. (15 How.) at 268, 14 L.Ed. 683 ("It is for the

discovery or invention of some practical method or means of producing a beneficial result or effect, that a patent is granted . . ."). In other words, the opposite meaning of "tangible" is "abstract."

(3) "CONCRETE RESULT"

Another consideration is whether the invention produces a "concrete" result. Usually, this question arises when a result cannot be assured. In other words, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. In re Swartz, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000) (where asserted result produced by the claimed invention is "irreproducible" claim should be rejected under section 101). The opposite of "concrete" is unrepeatable or unpredictable. Resolving this question is dependent on the level of skill in the art. For example, if the claimed invention is for a process which requires a particular skill, to determine whether that process is substantially repeatable will necessarily require a determination of the level of skill of the ordinary artisan in that field. An appropriate rejection under 35 U.S.C. Sec. 101 should be accompanied by a lack of enablement rejection under 35 U.S.C. Sec. 112, paragraph 1, where the invention cannot operate as intended without undue experimentation. See infra.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8.   Claims 1-4, 6-23, 26-32 are rejected under 35 U.S.C. 102(a) as being

unpatentable over Okamoto (US Patent 6,121,223).

(1) With regard to claim 1, Okamoto discloses in (Figs. 7 and 8) a method for

managing a code sequence, comprising: determining first intermediate correlation

values for a first plurality of sample sequences during a first cycle (Fig. 7 (11-1, 31-1a,

41-1, 21), Fig. 8 (12-1, 42-1)); determining second intermediate correlation values for

the first plurality of sample sequences during a second clock cycle (Fig. 7 (11-2, 41-2,

21), Fig. 8 (12-2, 42-2)); and determining correlation outputs for the first plurality of

sample sequences from the first and second intermediate correlation values (Fig. 7 (51),

Fig. 8 (52)) (col.8, lines 54-67, col. 9, lines 1-63, col. 10, lines 1-51).

However Okamoto does not disclose determining first intermediate correlation

values for a first plurality of sample sequences during a first clock cycle; and

determining second intermediate correlation values for the first plurality of sample

sequences during a second clock cycle.

(2) With regard to claim 2, claim 2 inherits all the limitations of claim 1. Okamoto

further discloses in (Fig. 8) wherein determining the first intermediate correlation values

(12-1) comprises processing coefficients in a first code sequence group in parallel with

corresponding sample values in corresponding sample sequence groups from the first

plurality of sample sequence (col. 10, lines 1-67, col. 16, lines 66-67- col. 17, lines 1-9).

(3) With regard to claim 3, claim 3 inherits all the limitations of claim 1. Okamoto

further discloses wherein determining the second intermediate (12-2) correlation values

comprises processing coefficients in a second code sequence group in parallel with

corresponding sample values in corresponding sample sequence groups from the first

plurality of sample sequences (col. 10, lines 1-67, col. 16, lines 66-67- col. 17, lines 1-

9).

(4) With regard to claim 4, claim 4 inherits all the limitations of claim 1. Okamoto further discloses in (Fig. 7 (51), Fig. 8 (52)), wherein determining correlation outputs for the first plurality of sample sequences comprises taking a sum of the first and second intermediate correlation values for each of the first plurality of sample sequences (col. 10, lines 14-17).

(5) With regard to claim 6, see rejection of claim 1.

(6) With regard to claim 7, claim 7 inherits all the limitations of claim 6. Okamoto in combination with Tran et al. do not explicitly disclose wherein the code sequence comprises L coefficients and the first and second group of coefficients in the code sequence each comprises n coefficients, where L and n may be any value.

However, one of ordinary skill in the art is able to give the code sequence any special value of coefficients.

Therefore claim 7 does not constitute patentability.

(7) With regard to claim 8, claim 8 inherits all the limitations of claim 7. Okamoto in combination with Tran et al. do not explicitly disclose wherein the first and second group of sample values in the received sample each comprises n sample values.

However, one of ordinary skill in the art is able to give the code sequence any special value of coefficients.

Therefore claim 8 does not constitute patentability.

(8) With regard to claim 9, claim 9 inherits all the limitations of claim 6. Okamoto further discloses wherein the first and second group of coefficients in the code sequence are contiguous (col. 10, lines 1-67).

(9) With regard to claim 10, claim 10 inherits all the limitations of claim 6. See rejection of claim 9.

(10) With regard to claim 11, claim 11 inherits all the limitations of claim 6. Okamoto further discloses in (Fig. 7) wherein processing the first group of coefficient (21) in the code sequence with the first group of sample values (11-1) in the received sample comprises determining a sum of the products (41-1) of the first group of coefficients in the code sequence with the first group of sample values in the received sample.

(11) With regard to claim 12, claim 12 inherits all the limitations of claim 6. Okamoto further discloses in (Fig. 7) wherein processing the second group of coefficients (21) in the code sequence with the second group of sample values (11-2) in the received sample comprises determining a sum of the products (41-2) of the second group of coefficients in the code sequence with the second group of sample values in the received sample.

(12) With regard to claim 13, claim 13 inherits all the limitations of claim 6. Okamoto further discloses in (Fig. 7) wherein determining the correlation output (51) from the first and second intermediated correlation values comprises taking the sum of the first and second intermediate correlation values.

(13) With regard to claim 14, see rejection of claim 1. Okamoto further discloses in (Fig. 8) selecting a (62) number of sample sequences to process in parallel where each of the sample sequences has contiguous sample values from a received sample.

(14) With regard to claim 15, see rejection of claim 1.

(15) With regard to claim 16, claim 16 inherits all the limitations of claim 14. Okamoto further discloses determining a correlation output for each of the sample sequences; and determining a synchronization point for the code sequence from the correlation outputs (col. 12, lines 36-63).

(16) With regard to claim 17, claim 17 inherits all the limitations of claim 16. Okamoto further discloses wherein determining a synchronization output comprises determining a correlation output having a highest numerical value (col. 12, lines 36-63).

Examiner asserts wherein a highest numerical value correspond to some threshold value.

(17) With regard to claim 18, claim 18 inherits all the limitations of claim 14. Okamoto in combination with Tran et al. do not explicitly disclose wherein a first sample value in a first sample sequence includes a first sample value in the received sample and each consecutive sample sequence includes a next contiguous sample value in the received sample as a first sample value of the consecutive sample sequence.

Examiner interprets claim 18 as wherein each sample sequence has a first sample value.

If is well known in the art that a sample sequence inherently has a first same value.

Therefore claim 18 does not constitute patentability.

(18) With regard to claim 19, claim 19 inherits all the limitations of claim 14. Okamoto further discloses in (Figs. 7 and 8) wherein processing comprises determining a sum of the products (Fig. 7 (31-1a, 41-1 – 41-4), Fig. 8 (32-1a – 31-4k, 42-1 – 42-4))

of the coefficients in each of the code sequence groups with each of the sample values

in corresponding sample sequence groups from the first set of sample sequences.

(19) With regard to claim 20, claim 20 inherits all the limitations of claim 14. Tran

et al. further discloses wherein the code sequence comprises a plurality of L contiguous

values (col. 3, lines 57-67 – col. 4, lines 1-3).

(20) With regard to claim 23, claim 23 inherits all the limitations of claim 22. See

rejection of claims 9 and 14.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 21, 26, 27-32 rejected under 35 U.S.C. 103(a) as being unpatentable

over Okamoto (US Patent 6,121,223) as applied to claims 1 and 20, in view of Tran et

al. (US Patent 5,715,276).

(1) With regard to claim 21, claim 21 inherits all the limitations of claim 20.

However Okamoto does not disclose wherein the code sequence is organized into a

plurality of n code sequence groups.

However Tran et al. discloses wherein the code sequence is organized into a

plurality of n code sequence groups (col. 23, lines 32-40, col. 24, lines 17-42).

Therefore it would have been obvious to one of ordinary skill in the art to modify

Okamoto in view of Tran et al. to incorporate wherein the code sequence is organized

into a plurality of n code sequence groups in order to create a bit match filter requiring

less silicon and consume less power (Tran et al, col. 1, lines 5-10).

(2) With regard to claim 26, see rejection of claim 1. Tran et al. further discloses

processing coefficients in each of the code sequence groups in parallel with

corresponding sample values in corresponding sample sequence groups from the first

set of d sample sequences, where each of the code sequence groups is processed

during a different clock cycle, where L, d, and n may be any value (col. 1, lines 13-41,

col. 2, lines 21-42, 54-60, col. 21, lines 1-10, 24-46, col. 24, lines 17-41).

Examiner asserts that Tran et al. does not disclose parallel processing. However

it is well known in the art that a match filter inherently uses parallel processing.

(23) With regard to claim 27, claim 27 inherits all the limitations of claim 26. Tran

et al. further discloses organizing sample values from each of a second set of d sample

sequences into a second set of contiguous sample sequence groups having n values

each; and processing values in each of the code sequence groups in parallel with

corresponding sample values in corresponding sample sequence groups from the

second set of d sample sequences where each of the code sequence groups is

processed during a different clock cycle (col. 1, lines 13-41, col. 2, lines 21-42, 54-60,

col. 21, lines 1-10, 24-46, col. 24, lines 17-41).

(24) With regard to claim 28, claim 28 inherits all the limitations of claim 26. See

rejection of claim 16.

(25) With regard to claim 29, claim 29 inherits all the limitations of claim 28. See rejection of claim 17.

(26) With regard to claim 30, claim 30 inherits all the limitation of claim 26. See rejection of claim 24.

(27) With regard to claim 31, claim 31 inherits all the limitations of claim 26. See rejection of claim 19.

(28) With regard to claim 32, claim 32 inherits all the limitations of claim 26. See rejection of claim 25.

11.   Claims 33-37, 39-44, 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tran et al. (US Patent 5,715,276) in view of Okamoto (US Patent 6,121,223).

(1) With regard to claim 33, Tran et al. discloses a plurality of code sequence registers that store coefficients from a code sequence group, the plurality of code sequence registers storing coefficients from one code sequence group of a plurality of code sequence groups at a time (col. 1, lines 13-41, col. 2, lines 21-42, 54-60, col. 21, lines 1-10, 24-46, col. 23, lines 32-40, col. 24, lines 17-41); and a processing unit that processes coefficients in each of the plurality of code sequence groups in the plurality of code sequence registers in parallel with corresponding sample values in corresponding sample sequence groups where each of the code sequence groups is processed during a different clock cycle (col. 1, lines 13-41, col. 2, lines 21-42, 54-60, col. 21, lines 1-10, 24-46, col. 23, lines 32-40, col. 24, lines 17-41).

However Tran et al. does not discloses a plurality of sample registers that store sample values from a plurality of sample sequences that are processed in parallel and a processing unit that processes coefficients in each of the plurality of code sequence groups in the plurality of code sequence registers in parallel with corresponding sample values in corresponding sample sequence groups from a first plurality of sample sequences in the plurality of sample registers.

However Okamoto discloses in (Fig. 8) a plurality of sample registers (12-1 – 12-4) that store sample values from a plurality of sample sequences that are processed in parallel and a processing unit that processes coefficients in each of the plurality of code sequence groups in the plurality of code sequence registers in parallel with corresponding sample values in corresponding sample sequence groups from a first plurality of sample sequences in the plurality of sample registers (col. 10, lines 1-67).

Therefore it would have been obvious to one of ordinary skill in the art to modify Tran et al. in view of Okamoto to incorporate a plurality of sample registers that store sample values from a plurality of sample sequences that are processed in parallel and a processing unit that processes coefficients in each of the plurality of code sequence groups in the plurality of code sequence registers in parallel with corresponding sample values in corresponding sample sequence groups from a first plurality of sample sequences in the plurality of sample registers in order to minimize the power consumption which is increased as the number of samples is increased in a technique for sampling a plurality of samples, which is capable of decreasing the transmission error and improving the characteristics (Okamoto, col. 3, liens 60-67).

(2) With regard to claim 34, claim 34 inherits all the limitations of claim 33.
Okamoto further discloses in (Fig. 7 and 8) comprising a plurality of accumulation sub-
units (Fig. 7 (41-1 – 41-4), Fig. 8 (42-1 – 42-4)) each accumulation sub-unit receiving
results from the processing unit for a designated sample sequences, each accumulation
unit generating a correlation value for the designated sample sequence after each of the
code sequence groups are processed.

(3) With regard to claim 35, claim 35 inherits all the limitations of claim 33. Tran
et al. further discloses wherein the processing unit processes the coefficients in each of
the plurality of code sequence groups in the plurality of code sequence registers in
parallel with corresponding sample values in corresponding sample sequence groups
from a second plurality of sample sequences in the plurality of sample registers, where
each of the code sequence groups is processed during a different clock cycle (col. 1,
lines 13-41, col. 2, lines 21-42, 54-60, col. 21, lines 1-10, 24-46, col. 23, lines 32-40, col.
24, lines 17-41).

(4) With regard to claim 36, claim 36 inherits all the limitations of claim 34.
Okamoto further discloses determining a correlation output for each of the sample
sequences; and determining a synchronization point for the code sequence from the
correlation outputs (col. 12, lines 36-63).

(5) With regard to claim 37, claim 37 inherits all the limitations of claim 36.
Okamoto further discloses wherein determining a synchronization output comprises
determining a correlation output having a highest numerical value (col. 12, lines 36-63).

Examiner asserts wherein a highest numerical value correspond to some
threshold value.

(6) With regard to claim 39, see rejection of claim 33.

(7) With regard to claim 40, claim 40 inherits all the limitations of claim 39.
Okamoto further discloses in (Fig. 8) an accumulation sub-unit (52), corresponding to
each of the d sample sequences that are processed in parallel, that receives results
from the processing unit for a designated sample sequence and that determines a
correlation output for the designated sample sequence after each of the code sequence
groups are processed (col.10, lines 1-67).

(8) With regard to claim 41, claim 41 inherits all the limitations of claim 39. Tran
et al. further discloses wherein the processing unit processes the coefficients in each of
the plurality of code sequences groups in the plurality of n code sequence registers in
parallel with corresponding sample values in corresponding sample sequence groups
from a second plurality of d sample sequences in the plurality of n+d-1 sample registers,
where each of the code sequence groups is processed during a different clock cycle
(col. 1, lines 13-41, col. 2, lines 21-42, 54-60, col. 21, lines 1-10, 24-46, col. 23, lines
32-40, col. 24, lines 17-41).

(9) With regard to claim 42, claim 42 inherits all the limitations of claim 40. See
rejection of claim 36.

(10) With regard to claim 43, claim 43 inherits all the limitations of claim 42. See
rejection of claim 37.

(11) With regard to claim 44, claim 44 inherits all the limitations of claim 39.

Okamoto further discloses in (Fig. 7) wherein the processing unit (41-1) determines a

sum of products of the coefficients in each of the code sequence groups with each of

the sample values in corresponding sample sequence groups from the first set of d

correlation sequences (31-1a, 31-1k).

(12) With regard to claim 46, see rejection of claim 33.

Conclusion

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Cicely Ware whose telephone number is 571-272-3047.

The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mohammed Ghayour can be reached on 571-272-3021. The fax phone

numbers for the organization where this application or proceeding is assigned are 703-

872-9314 for regular communications and 703-872-9314 for After Final

communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

3900.

Cicely Ware

cqw
December 11, 2006

MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER